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CLAIMS

1. A method for three-dimensional printing of a three-dimensional model,
said method comprising:

dispensing a first interface material from a printing head;

5 dispensing at least a second interface material from said printing
head; and

combining said first and second interface material in
pre-determined proportions to produce construction layers for forming
the three-dimensional model.

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2. The method according to claim 1, wherein said printing head includes first
and second printing heads and wherein said first interface material and second
interface material are dispensed from first and second printing heads,
respectively.

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3. The method according to claim 1, further comprising the step of:
curing said first interface material for a first period of time and at a
first radiation wavelength to obtain a first modulus of elasticity.

4. The method according to claim 1, further comprising the step of:
curing said second interface material for a second period of time
and at a second radiation wavelength to obtain a second modulus of
20 elasticity.

5. The method according to claim 1, wherein said step of combining
includes the step of:

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adjusting the relative proportions of said first and second interface materials, said first and second interface materials having different modulus of elasticity.

6. The method according to claim 1, further comprising the step of:

5 combining said first and second interface material in pre-determined proportions to form a release layer, said release layer having a lower modulus of elasticity than said construction layer.

7. The method according to claim 6 wherein said release layer includes a plurality of release blocks, each of said release blocks having a pre-determined

10 modulus of elasticity.

8. The method according to claim 1, wherein 95 to 100% of said construction layer includes said first interface material and 0 to 5% of said construction layer includes said second interface material.

9. The method according to claim 1, wherein 0 to 5% of said release layer includes said first interface material and 95 to 100% of said release layer includes said second interface material.

10. The method according to claim 1, wherein said first interface material is a different color than said second interface material.

11. The method according to claim 1, wherein said first interface material is transparent.

12. The method according to claim 1, wherein said second interface material is transparent.

13. A system for three-dimensional printing of a three-dimensional model, comprising:

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at least one printing head, having a plurality of nozzles;

at least first and second dispensers connected to said at least one printing head for dispensing at least first and second interface materials respectively; and

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control means connected to said at least one printing head for combining at least said first and second interface material in pre-determined proportions to produce layers for forming the three-dimensional model.

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14. The system according to claim 13 and further comprising curing means for optionally curing said layers.

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15. The system according to claim 14 wherein said curing means includes:

a first curing means for curing said first interface material for a first period of time and at a first radiation wavelength to obtain a first modulus of elasticity; and

a second curing means for curing said second interface material for a second period of time and at a second radiation wavelength to obtain a second modulus of elasticity.

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16. The system according to claim 13, wherein said printing head includes first and second printing heads and wherein said first interface material and second interface material are dispensed from first and second printing heads, respectively.

17. The system according to claim 13 wherein said layers comprise first construction layers and second release layers, said first construction layers and said second release layers having differing proportions of said first and said

second interface materials, respectively, said first construction layers and second release layers having different modulus of elasticity.

18. The system according to claim 13 and further comprising positioning apparatus coupled to said control means for selectively positioning said first and second printing heads by commands from said control means.

19. The system according to claim 13, wherein said layers are photopolymer material curable by the application of any one of a group including ultra-violet radiation, infra red radiation and E-beam.

20. The system according to claim 13, wherein said first interface material is a different color than said second interface material.

21. The system according to claim 13, wherein said first interface material is transparent.

22. The system according to claim 13, wherein said second interface material is transparent.

23. A system for three-dimensional four-color printing of a three-dimensional model, comprising:

at least one printing head, having a plurality of nozzles;

a plurality of dispensers connected to said at least one printing head for dispensing a plurality of interface materials; and

control means connected to said at least one printing head for combining said plurality of interface materials in pre-determined proportions to produce layers having different colors for forming the three-dimensional model.

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24. The system according to claim 23, wherein said printing head includes a plurality of printing heads and wherein each of said plurality of interface materials are dispensed from a different one of each of said plurality of printing heads, respectively.

5 25. The system according to claim 23 and further comprising curing means for optionally curing said layers.

26. The system according to claim 25 wherein said curing means includes:
at least first curing means for curing at least one of said plurality of interface materials for a first period of time and at a first radiation wavelength to obtain a first modulus of elasticity.

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27. The system according to claim 23 wherein said layers have different modulus of elasticity.

28. The system according to claim 23, further comprising a dispenser for dispensing transparent material.

15 29. The system according to claim 23, wherein said layers are photopolymer material curable by the application of any one of a group including ultra-violet radiation, infra red radiation and E-beam.

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